

Figure 6-30. Isopleths of peak cumulative groundwater ingestion risk T_{or} radionuclides for the refined aquifer grid.

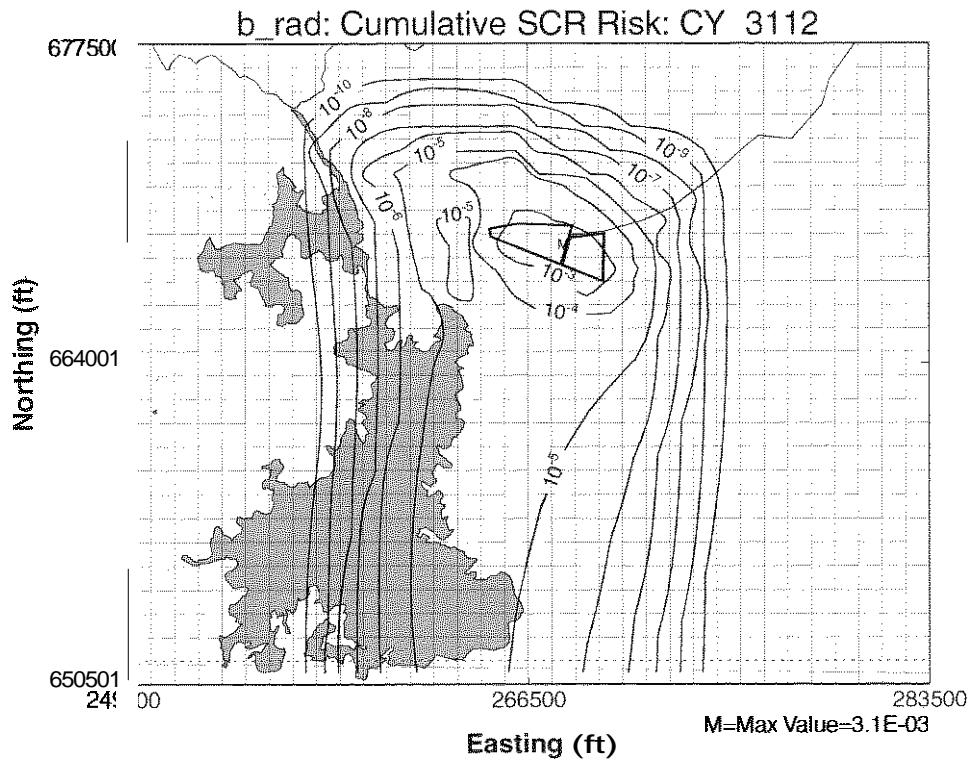


Figure 6-31, Isopleths of peak cumulative groundwater ingestion risk for radionuclides for the regional base aquifer grid.

6-43 Risk and Concentration Plots

This section contains a set of seven plots for each simulation group (see Figure 6-32 through Figure 6-82) as listed below:

- Simulated groundwater concentrations for the 1,000-year period
- Estimated total risk from all pathways for the 1,000-year simulation period
- Simulated maximum groundwater concentrations for 10,000 years
- Estimated maximum groundwater ingestion risks for 10,000 years
- Simulated groundwater concentrations at the INEEL boundary for 10,000 years
- Estimated groundwater ingestion risks at the INEEL boundary for 10,000 years
- Simulated soil concentrations in the SDA for the 1,000-year simulation period

6.4.3.I Group 1 Contaminants. This subsection provides the simulated risk and concentration plots for Group 1 contaminants, Am-241, Np-237, U-233, and Th-229.

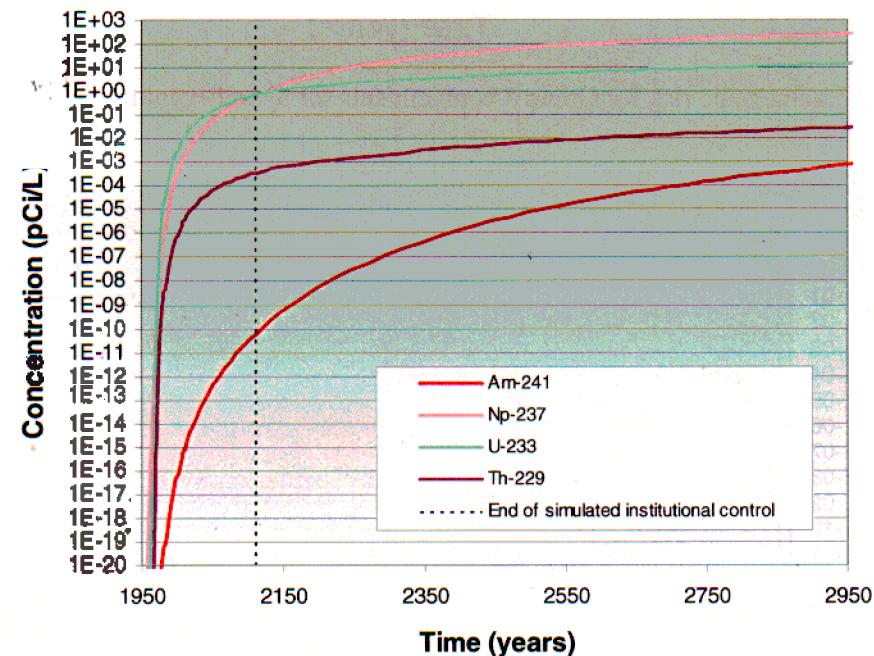


Figure 6-32. Simulated maximum groundwater concentrations for Group 1 contaminants for 1,000 years,

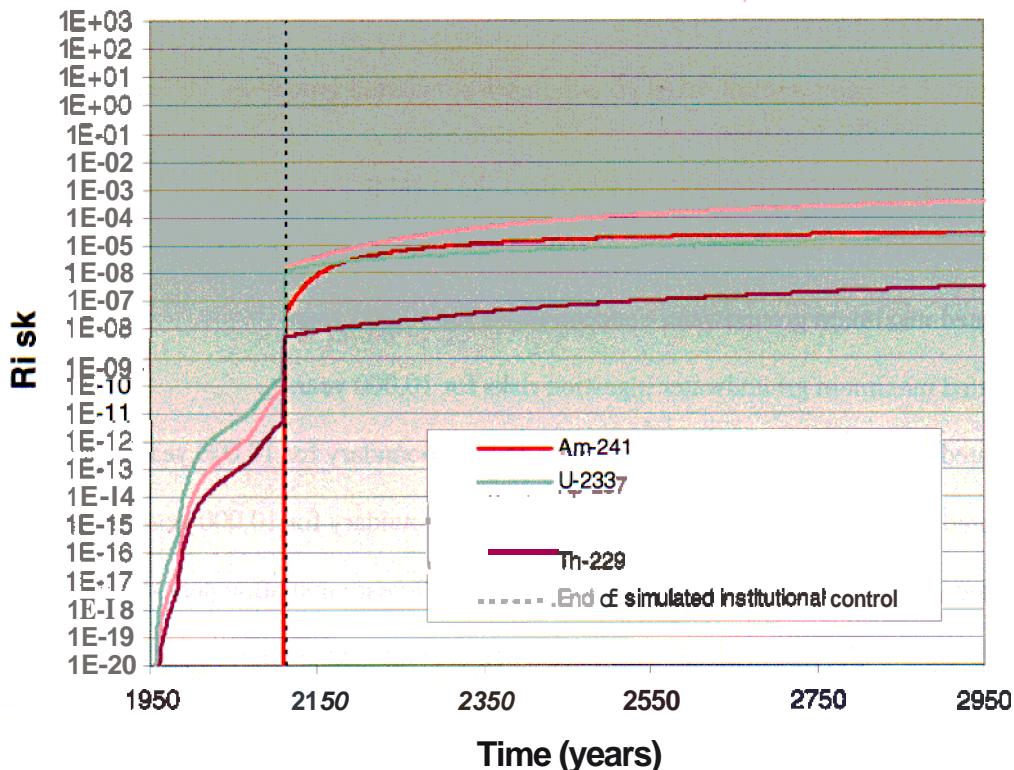


Figure 6-33. Total carcinogenic risk for Group 1 contaminants for hypothetical future residential exposure pathways.

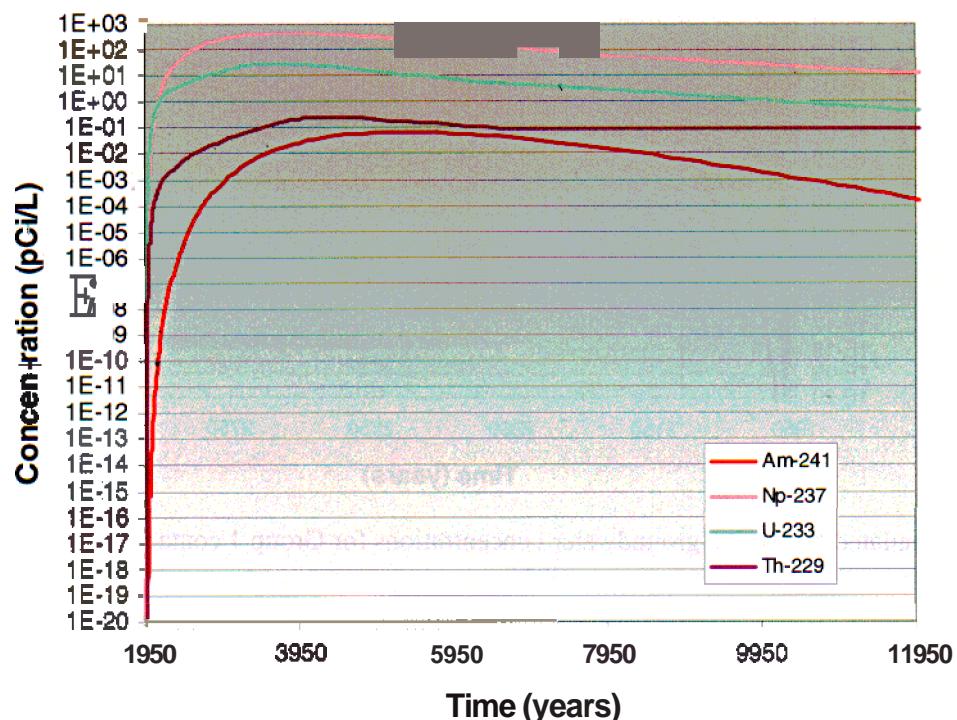


Figure 6-34. Simulated maximum groundwater concentrations for Group 1 contaminants over 10,000 years.

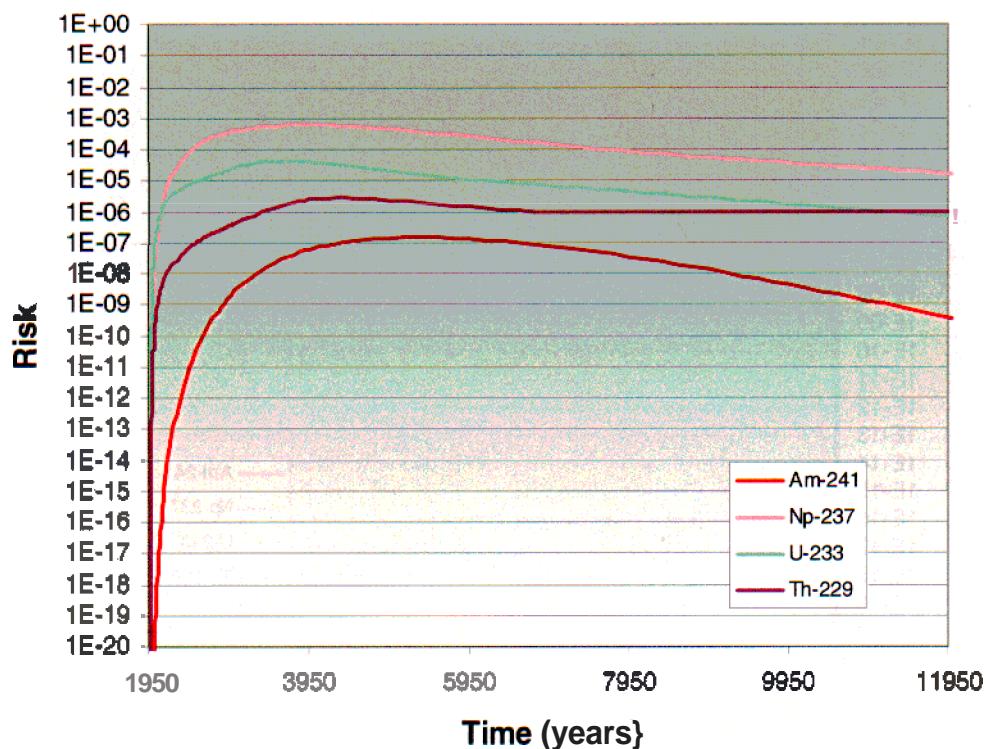


Figure 6-35. Simulated maximum groundwater ingestion risks for Group 1 contaminants over 10,000 years anywhere in the aquifer.

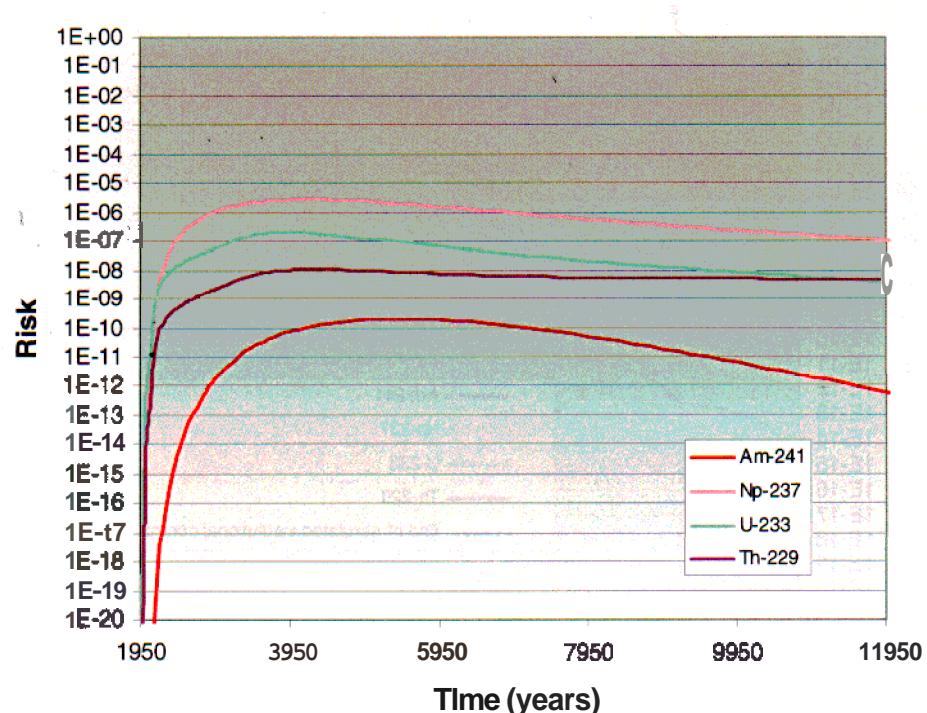


Figure 6-36. Simulated maximum groundwater concentrations for Group 1 contaminants over 10,000 years at the southern Idaho National Engineering and Environmental Laboratory boundary.

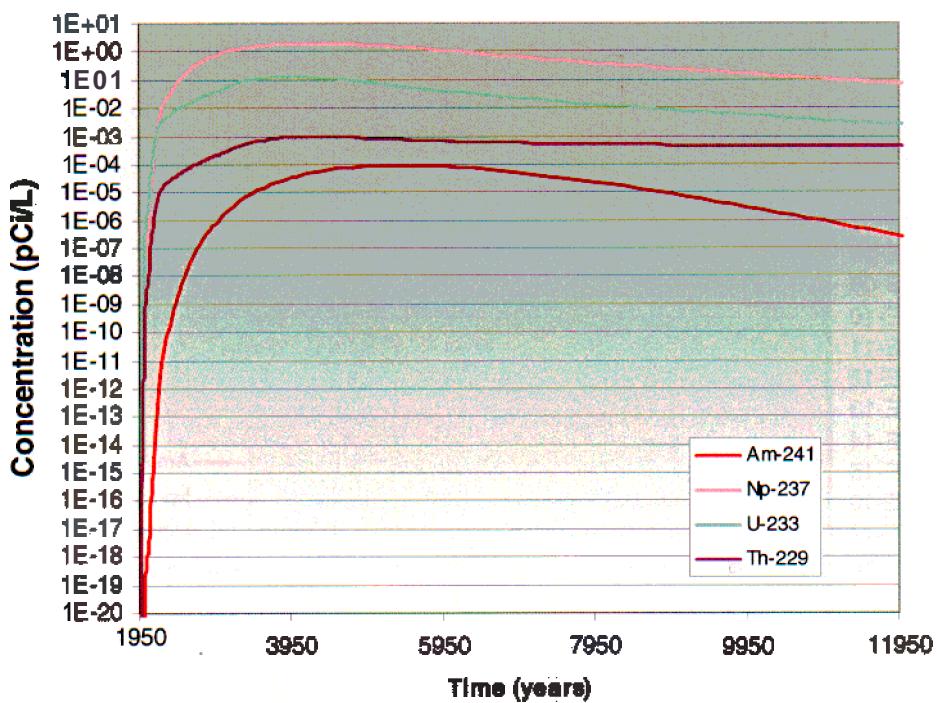


Figure 6-37. Simulated maximum groundwater ingestion risks for Group 1 contaminants over 10,000 years at the southern Idaho National Engineering and Environmental Laboratory boundary.

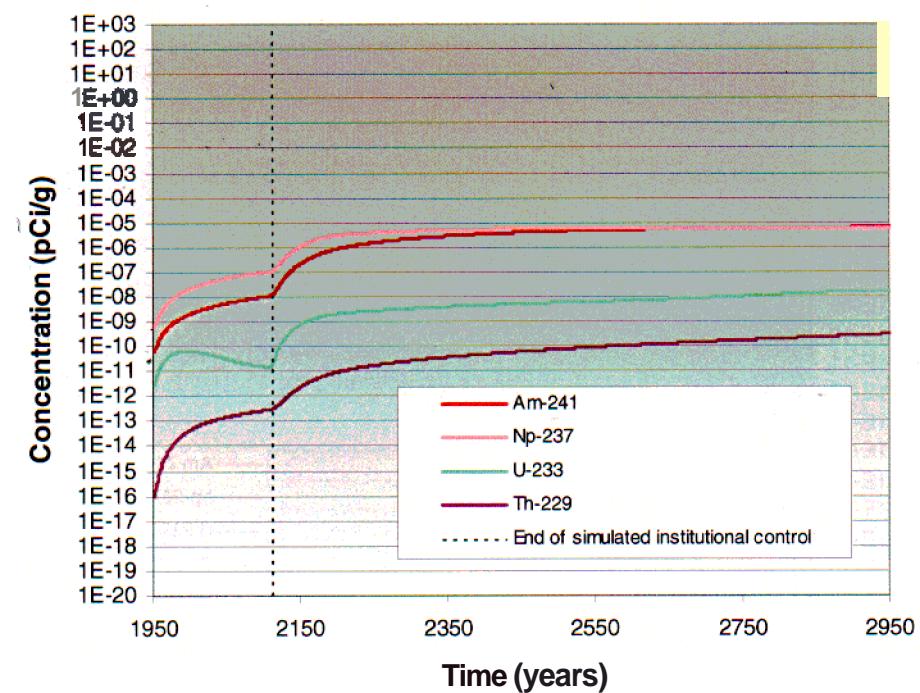


Figure 6-38. Simulated soil concentrations for Group 1 contaminants.

6.4.3.2 Group 2 Contaminants. This subsection provides the simulated risk and concentration plots for Group 2 contaminants Am-243, Pu-239, U-235, Pa-231, and Ac-227.

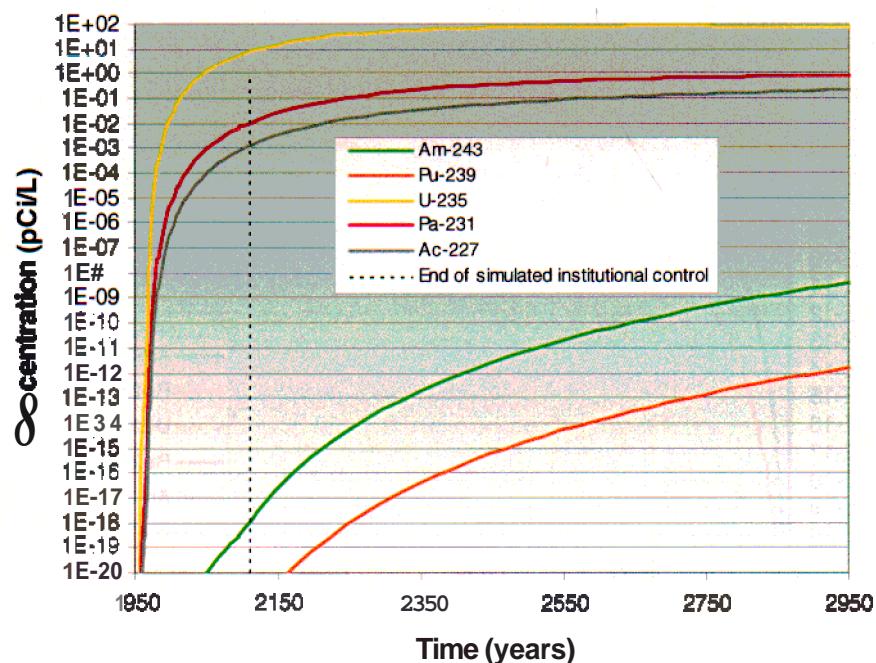


Figure 6-39. Simulated maximum groundwater concentrations for Group 2 contaminants over 1,000 years.

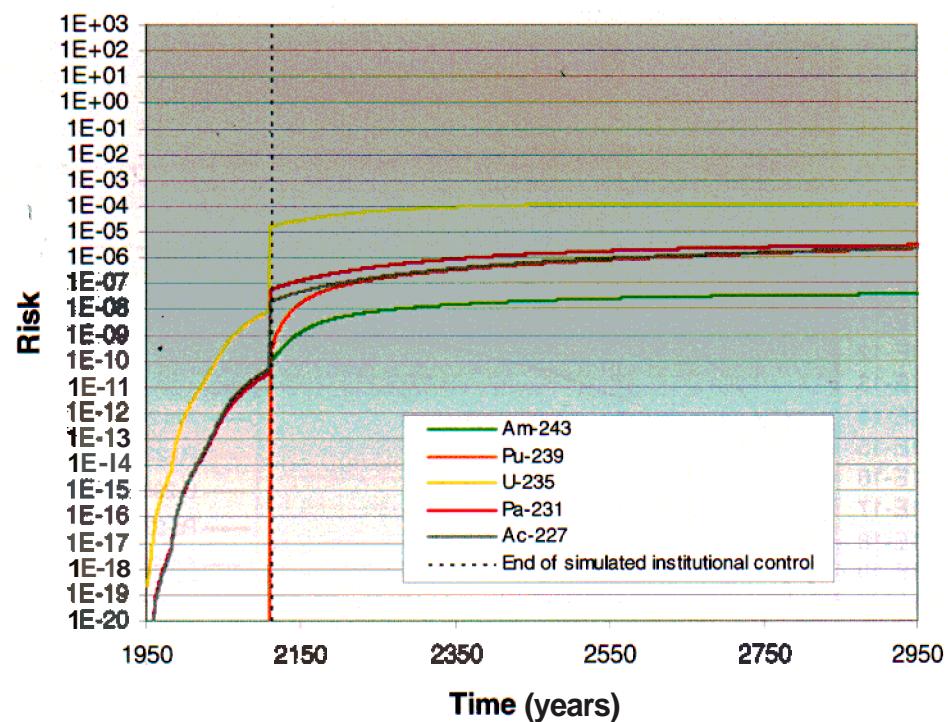


Figure 6-40. Total carcinogenic risk for Group 2 contaminants for hypothetical future residential exposure pathways.

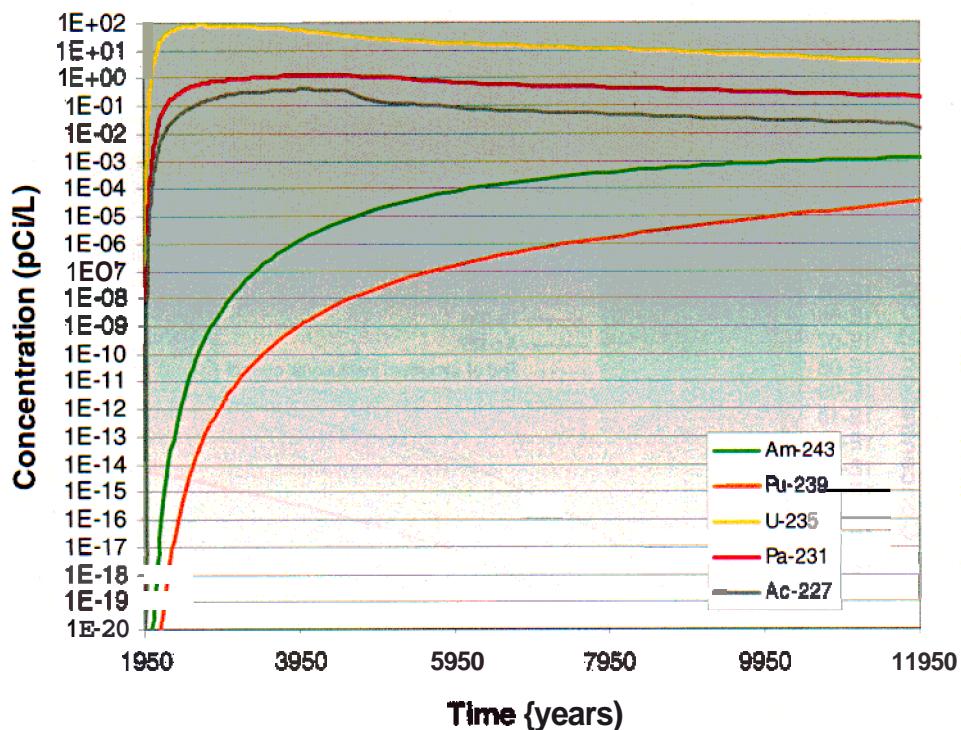


Figure 6-41. Simulated maximum groundwater concentrations for Group 2 contaminants over 10,000 years.

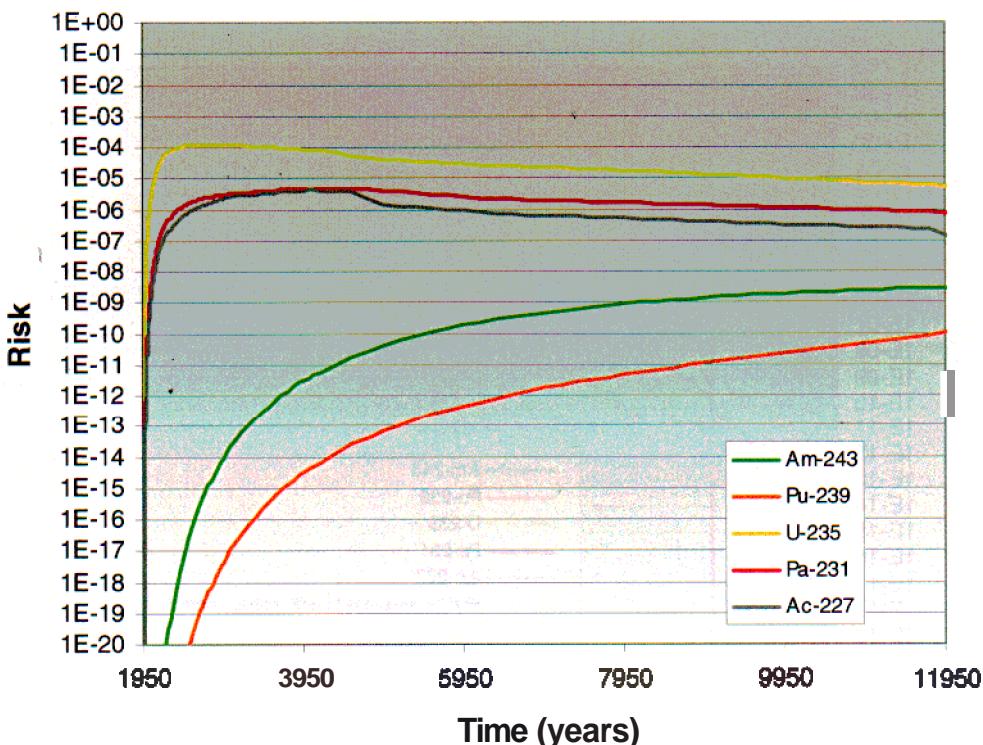


Figure 6-42. Simulated maximum groundwater ingestion risks for Group 2 contaminants over 10,000 years anywhere in the aquifer.

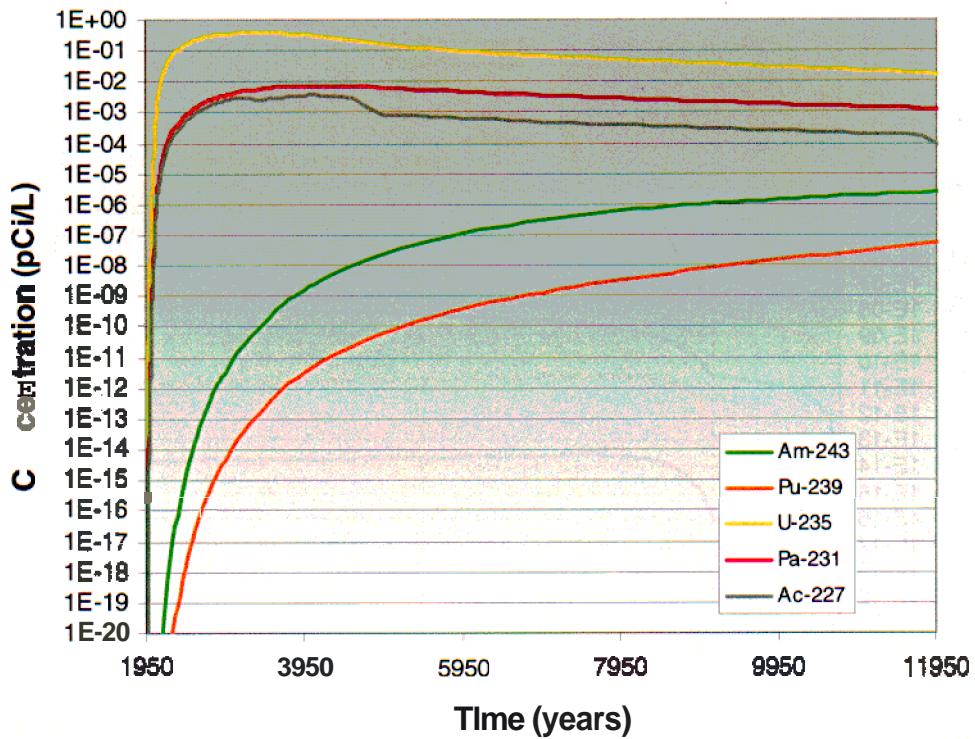


Figure 6-43. Simulated maximum groundwater concentrations for Group 2 contaminants over 10,000 years at the southern Idaho National Engineering and Environmental Laboratory boundary.:.

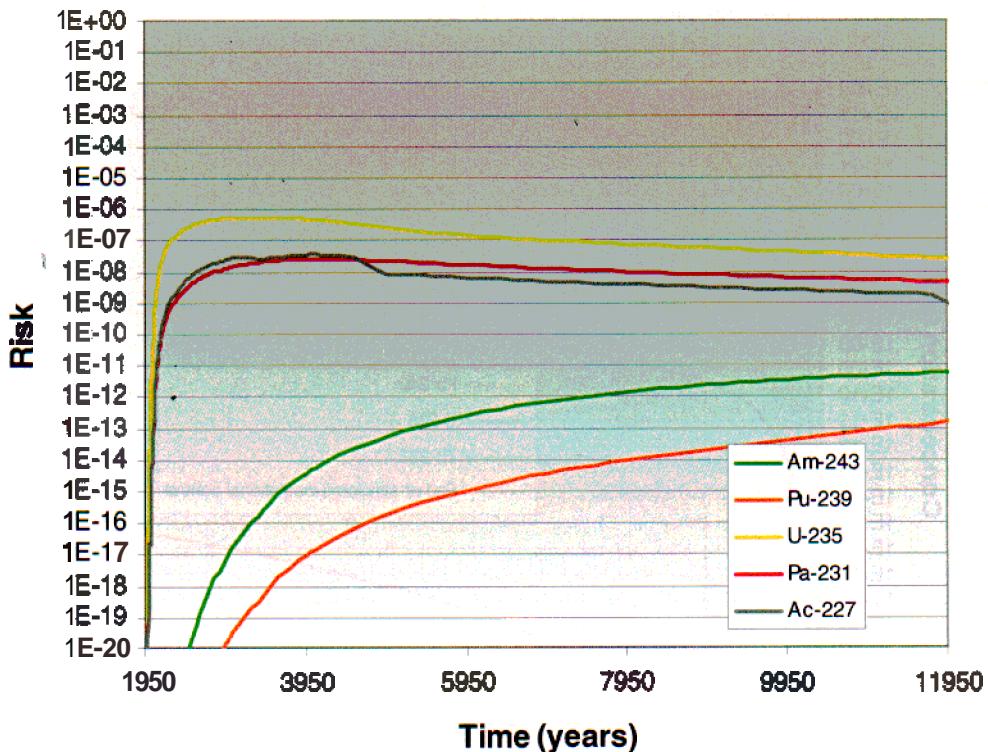


Figure 6-44. Simulated maximum groundwater ingestion risks for Group 2 contaminants over 10,000 years at the southern Idaho National Engineering and Environmental Laboratory boundary.

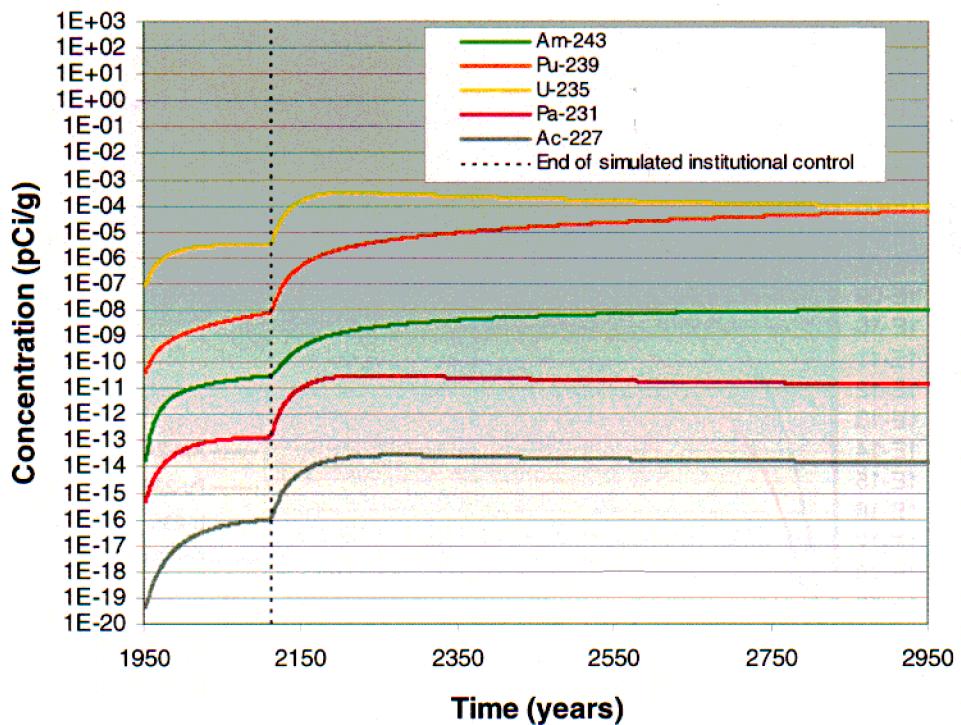


Figure 6-45. Simulated soil concentrations for Group 2 contaminants.

6.4.3.3 Group 3 Contaminants. This subsection provides the simulated risk and concentration plots for Group 3 Contaminants Pu-240, U-236, and Th-232.

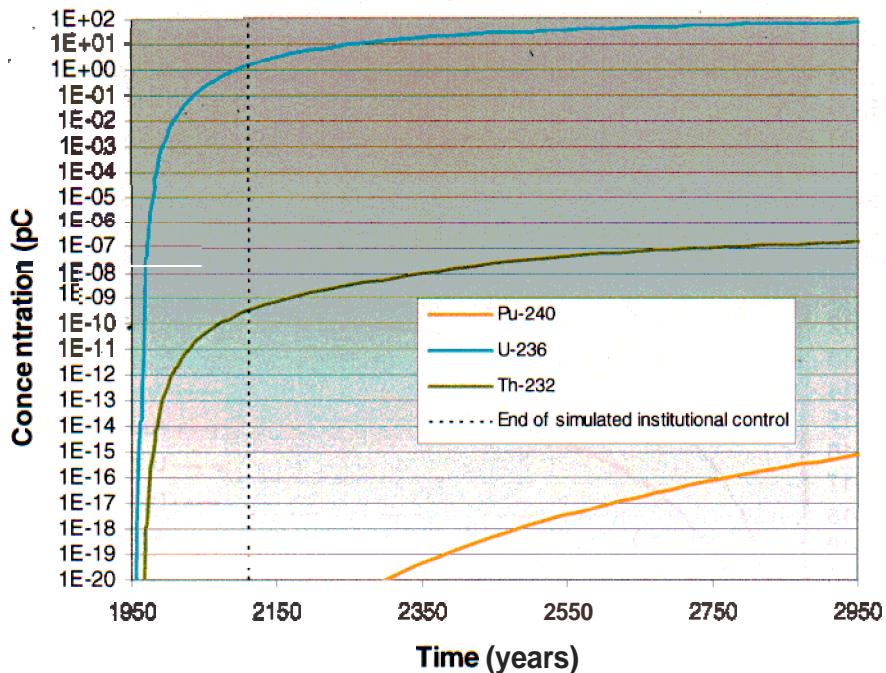


Figure 6-46. Simulated maximum groundwater concentrations for Group 3 contaminants over 1,000 years.

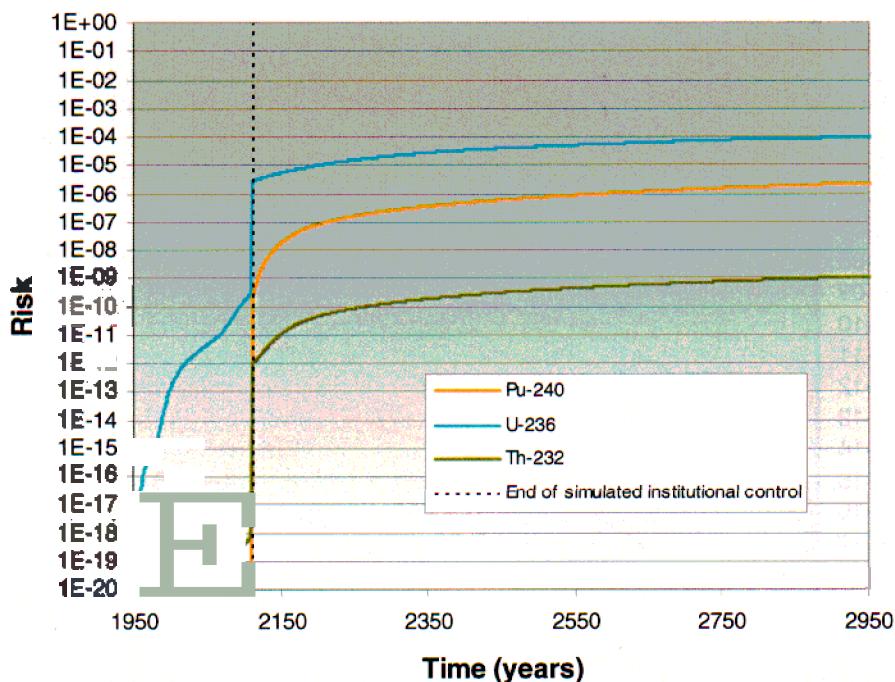


Figure 6-47. Total carcinogenic risk for Group 3 contaminants for hypothetical future residential exposure pathways.

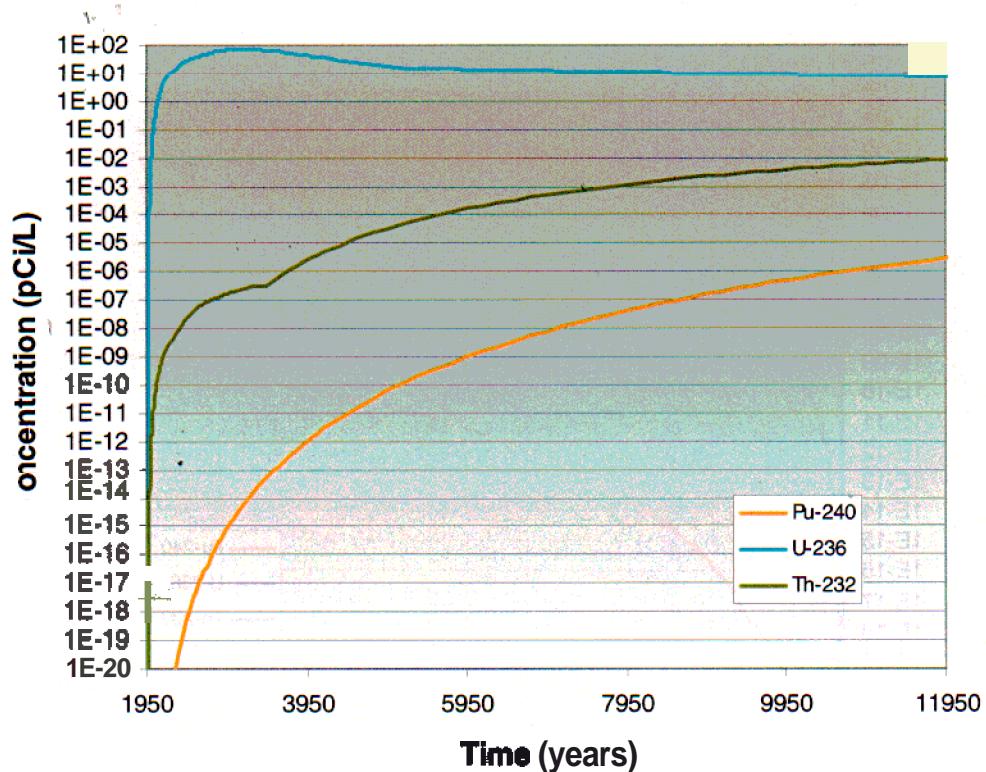


Figure 6-48. Simulated maximum groundwater concentrations for Group 3 contaminants over 10,000 years.

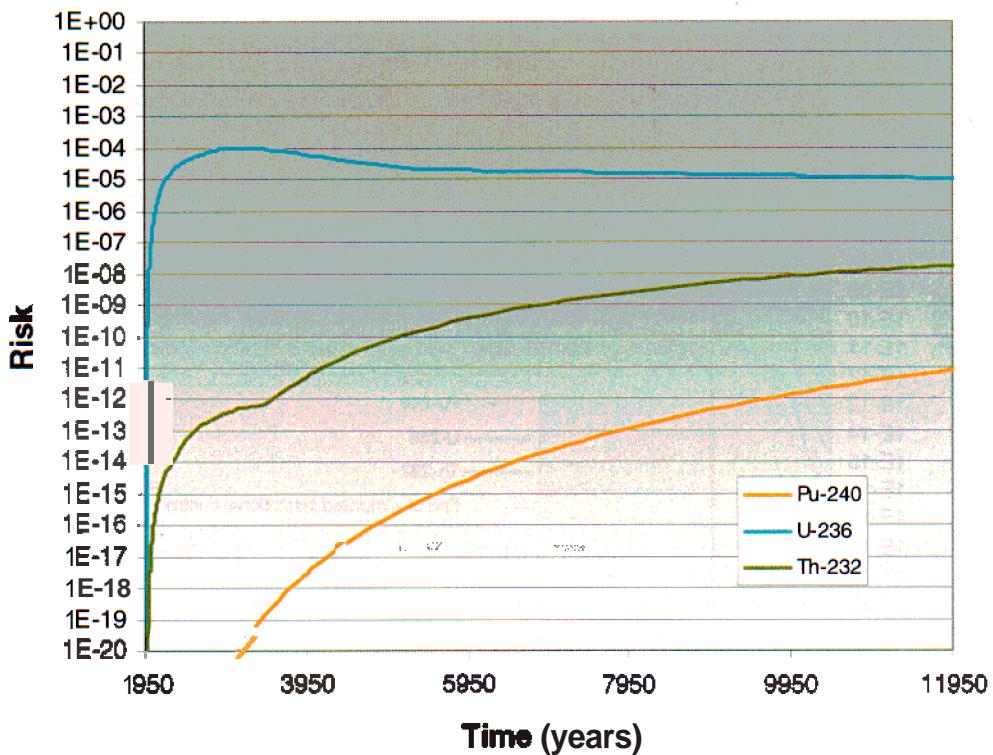


Figure 6.49 .Simulated maximum groundwater ingestion risks for Group 3 contaminants over 10,000 years anywhere in the aquifer.

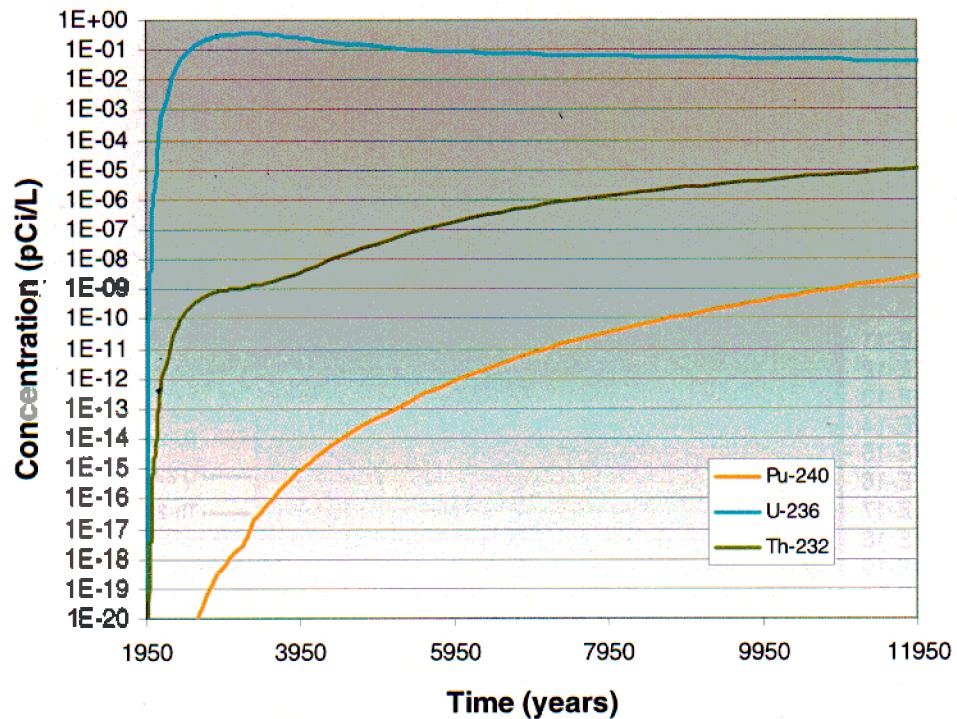


Figure 6-50. Simulated maximum groundwater concentrations for Group 3 contaminants over 10,000 years at the southern Idaho National Engineering and Environmental Laboratory boundary.

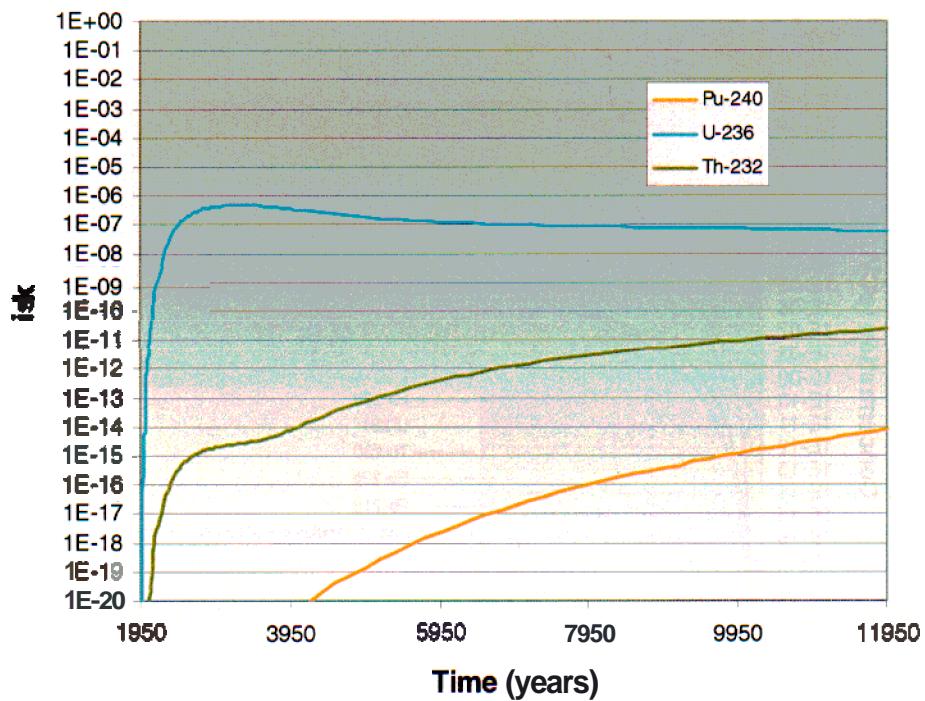


figure 6-51. Simulated maximum groundwater ingestion risks for Group 3 contaminants over 10,000 years at the southern Idaho National Engineering and Environmental Laboratory boundary.:.

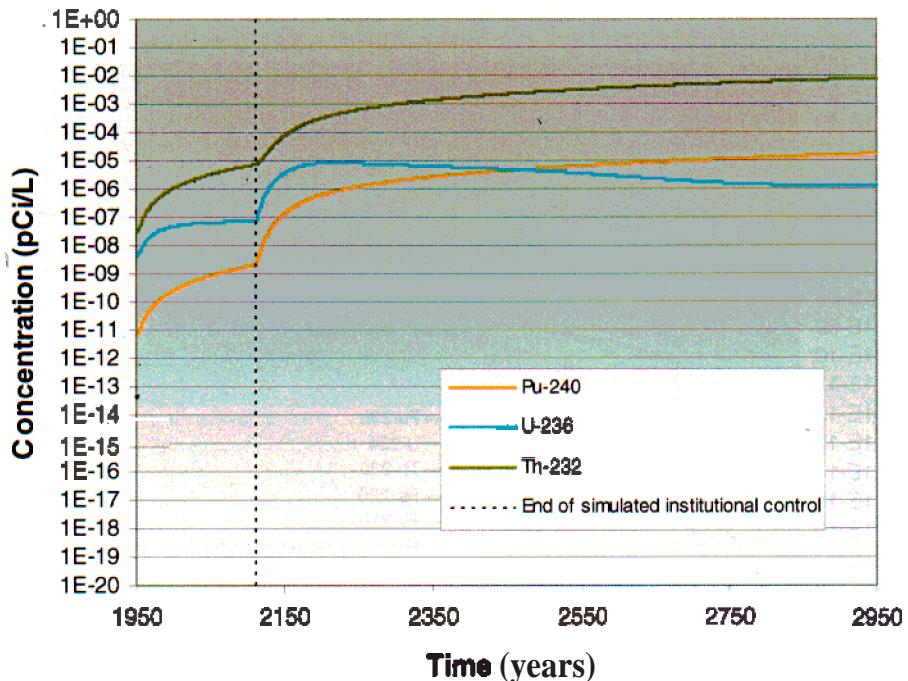


Figure 6-52. Simulated soil concentrations for Group 3 contaminants.

6.4.3.4 Group 4 Contaminants. This subsection provides the simulated risk and concentration plots for Group 4 contaminants Pu-238, U-234, Th-230, Ra-226 and Pb-210. However, U-234, Th-230, Ra-226, and Pb-210 are also included in Group 5. Risks shown in this section for U-234, Th-230, Ra-226,

and Pb-210 are attributable to decay of the Pu-238. The contributions from the U-234 decay chain are presented under Group 5.

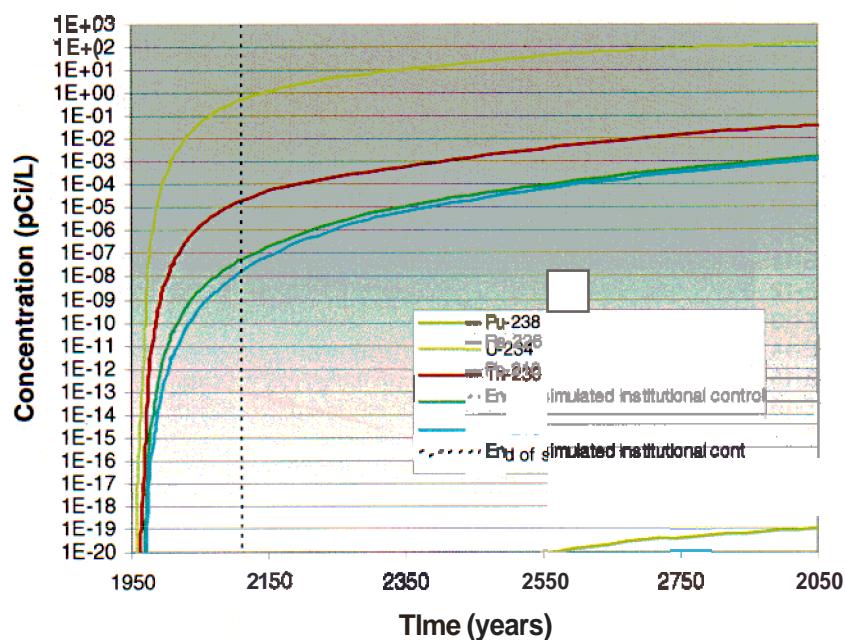


Figure 6-53. Simulated maximum groundwater concentrations for Group 4 contaminants over 1,000 years.

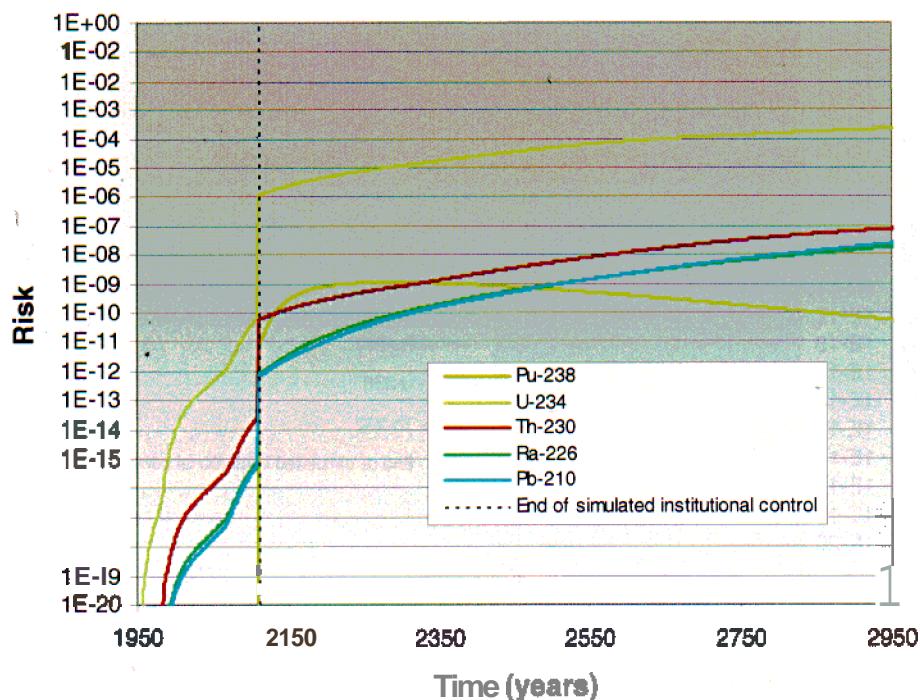


Figure 6-54. Total carcinogenic risk for Group 4 contaminants for hypothetical future residential exposure pathways.

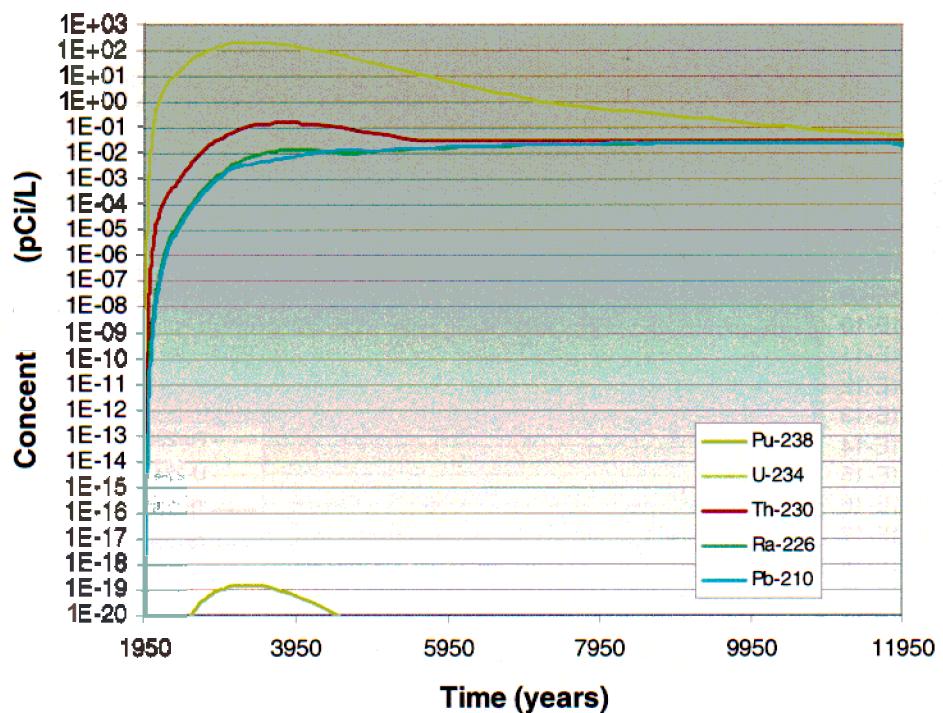


Figure 6-55. Simulated maximum groundwater concentrations for Group 4 contaminants over 10,000 years.

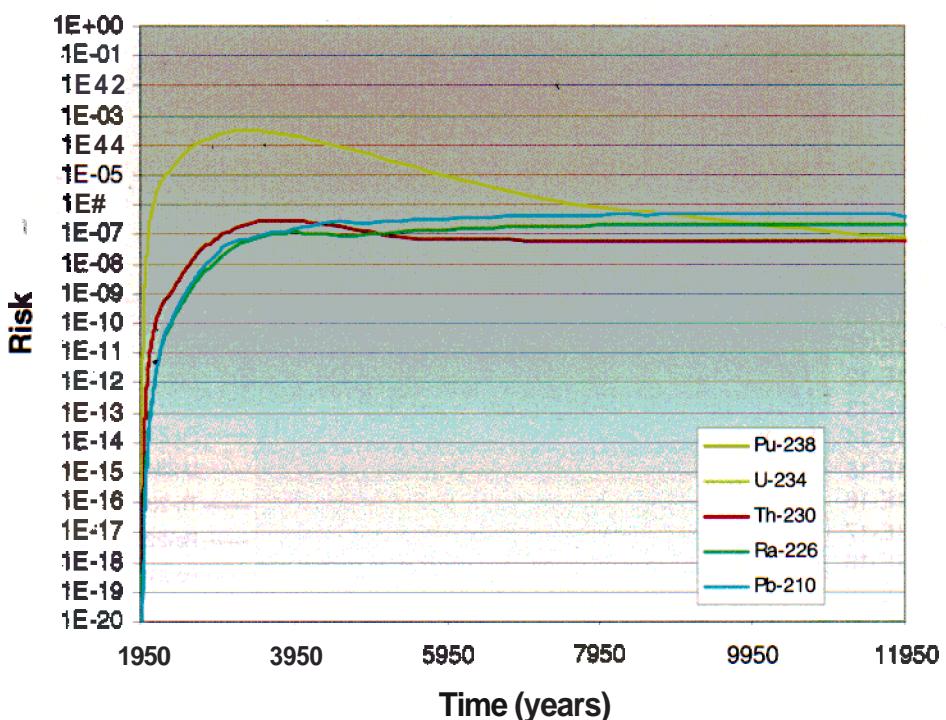


Figure 6-56. Simulated maximum groundwater ingestion risks for Group 4 contaminants over 10,000 years anywhere in the aquifer.

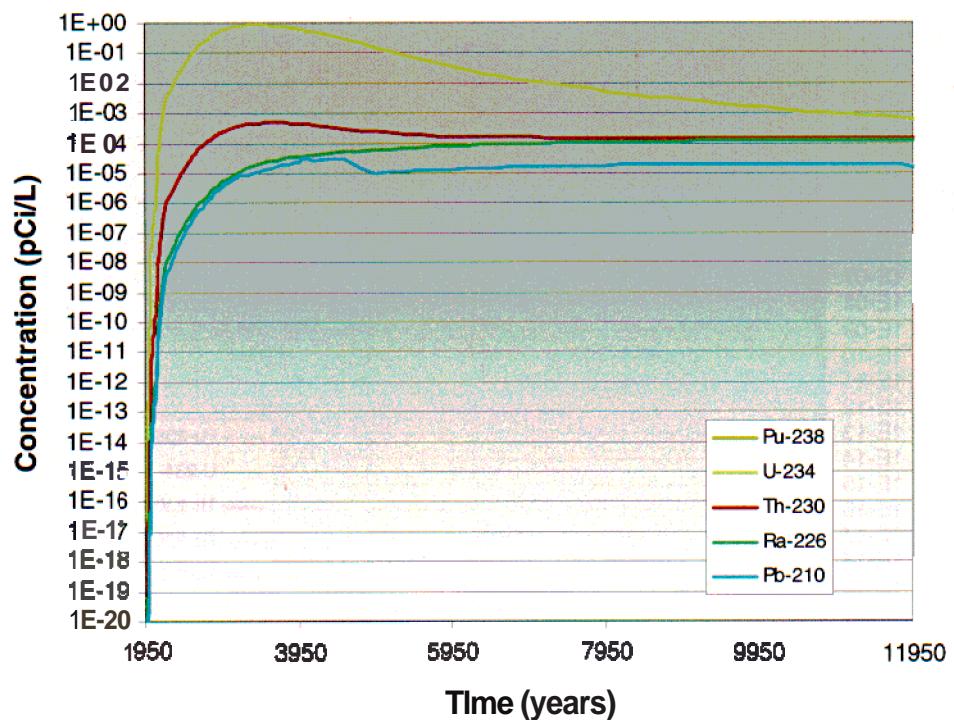


Figure 6-57. Simulated maximum groundwater concentrations for Group 4 contaminants over 10,000 years at the southern Idaho National Engineering and Environmental Laboratory boundary.

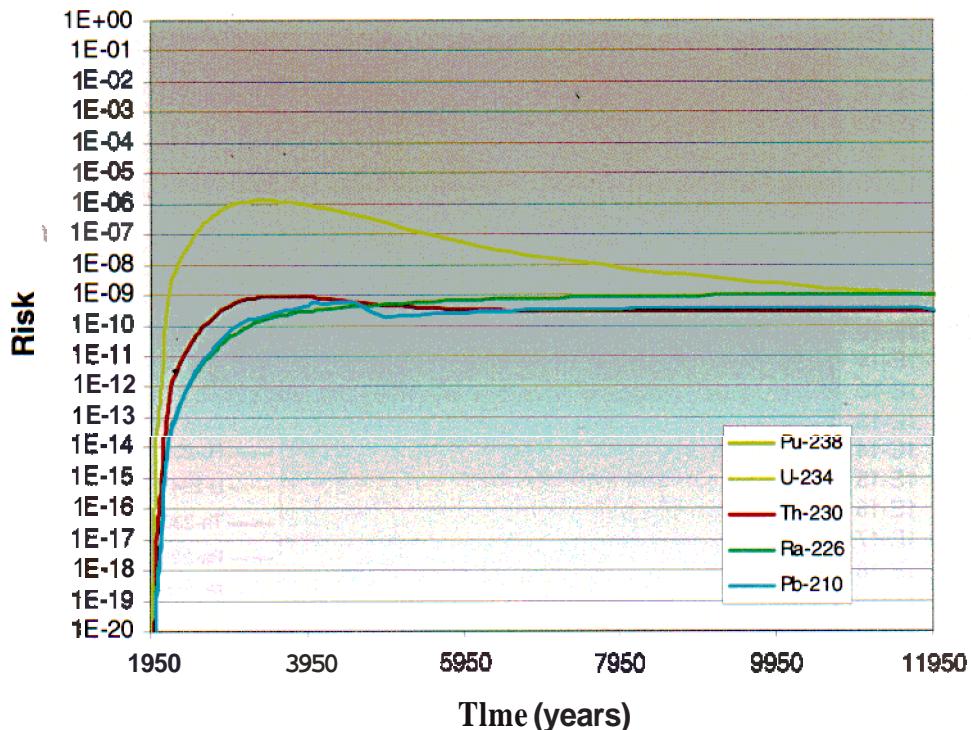


Figure 6-58. Simulated maximum groundwater ingestion risks for Group 4 contaminants over 10,000 years at the southern Idaho National Engineering and Environmental Laboratory boundary.

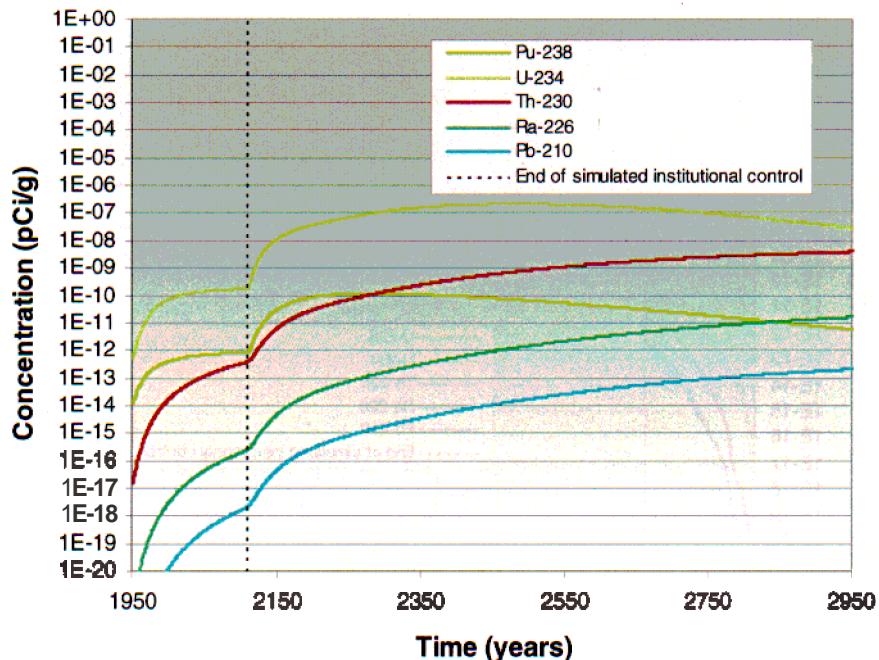


Figure 6-59. Simulated soil concentrations for Group 4 contaminants.

6.4.3.5 Group 5 Contaminants. This subsection provides simulated risk and concentration plots for Group 5 contaminants U-238, U-234, Th-230, Ra-226, and Pb-210. Disposal inventories for U-234, Th-230, Ra-226, and Pb-210 are included in the simulations in this section. Contributions to the total cumulative risks for U-234, Th-230, Ra-226, and Pb-210 risks are included in the Group 4 [REDACTED] contaminants from the decay of Pu-238, as indicated in the section above.

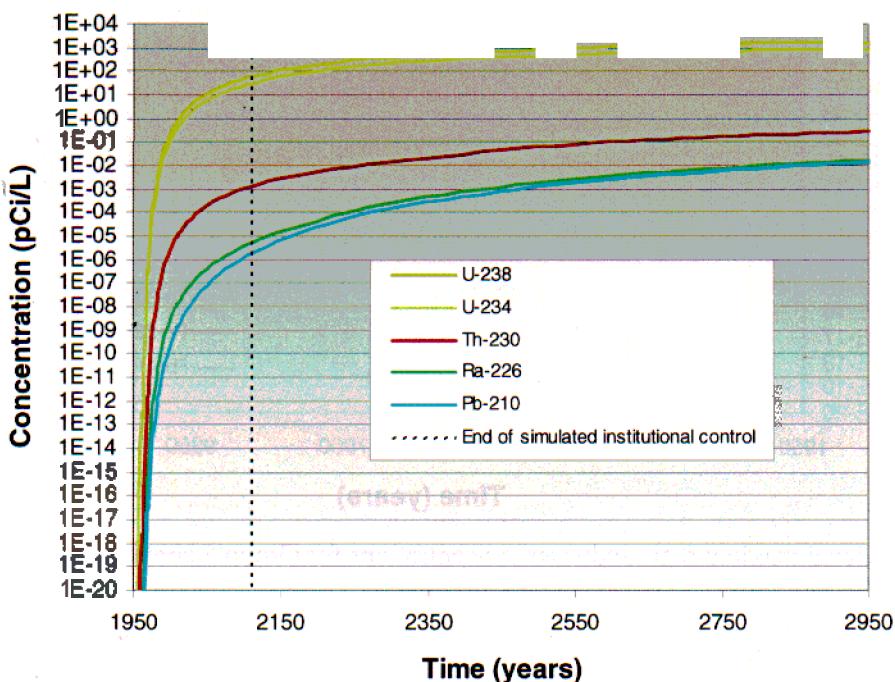


Figure 6-60. Simulated maximum groundwater concentrations for Group 5 contaminants over 1,000 years.

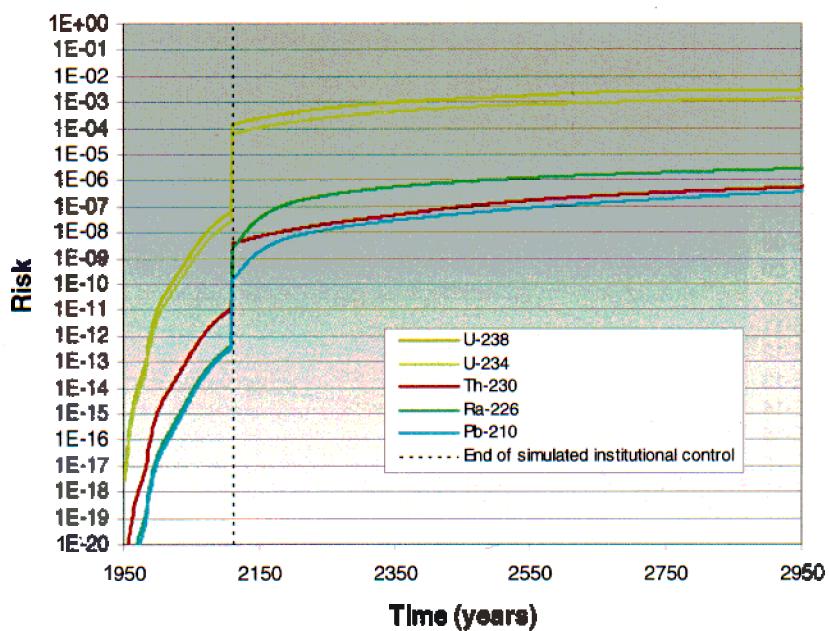


Figure 6-61. Total carcinogenic risk for Group 5 contaminants for hypothetical future residential exposure pathways.

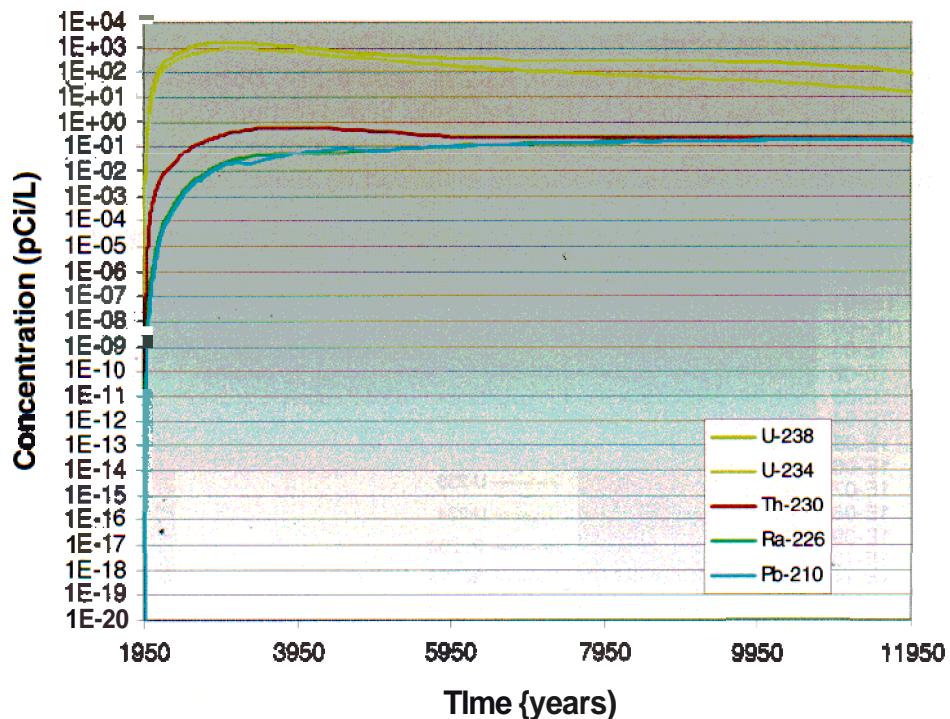


Figure 6-62. Simulated maximum groundwater concentrations for Group 5 contaminants over 10,000 years.

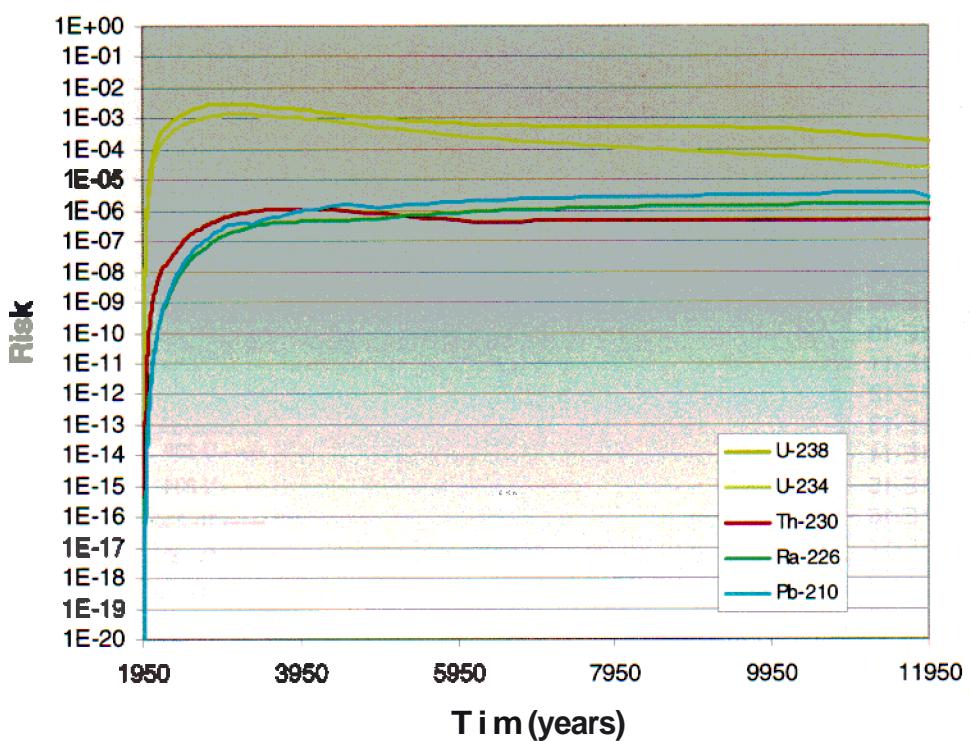


Figure 6-63. Simulated maximum groundwater ingestion risks for Group 5 contaminants over 10,000 years anywhere in the aquifer.

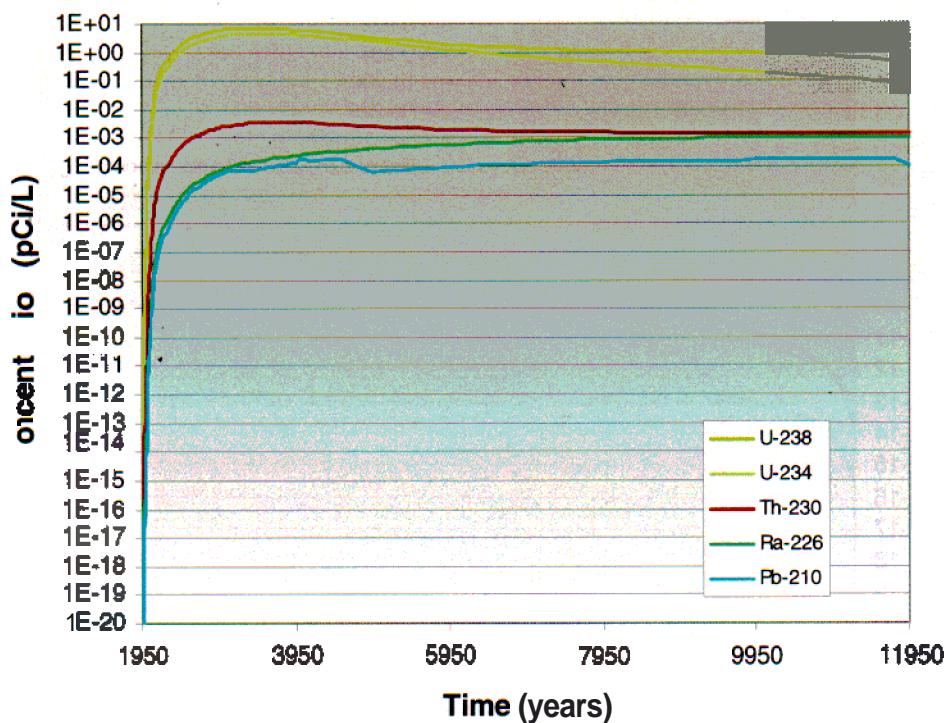


Figure 6-64. Simulated maximum groundwater concentrations for Group 5 contaminants over 10,000 years at the southern Idaho National Engineering and Environmental Laboratory boundary.

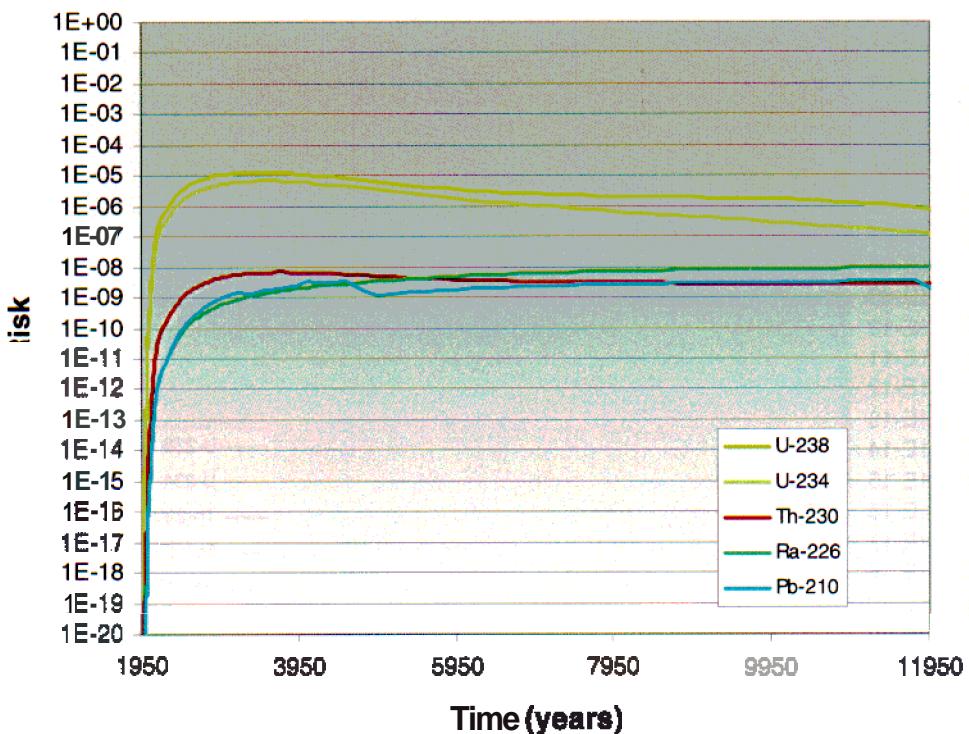


Figure 6-65. Simulated maximum groundwater ingestion risks for Group 5 contaminants over 10,000 years at the southern Idaho National Engineering and Environmental Laboratory boundary.¹

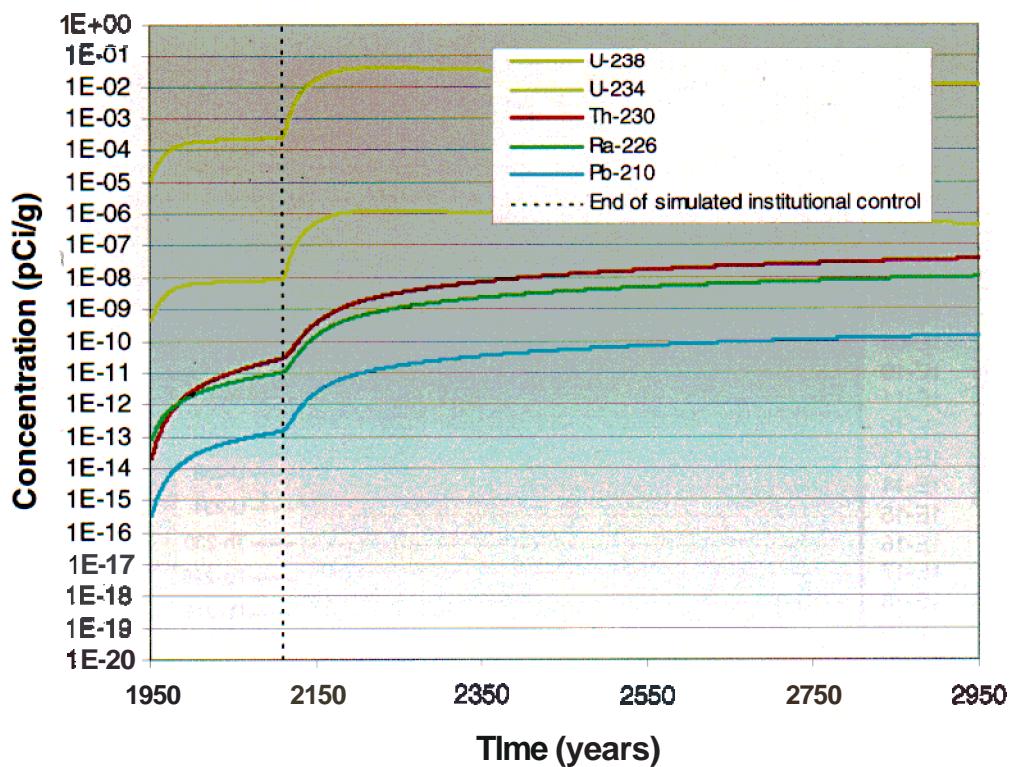


Figure 6-66. Simulated soil concentrations for Group 5 contaminants.

6.4.3.6 Group 6 Contaminants. This subsection provides simulated HI and concentration plots for nitrate, the only contaminant in Group 6.

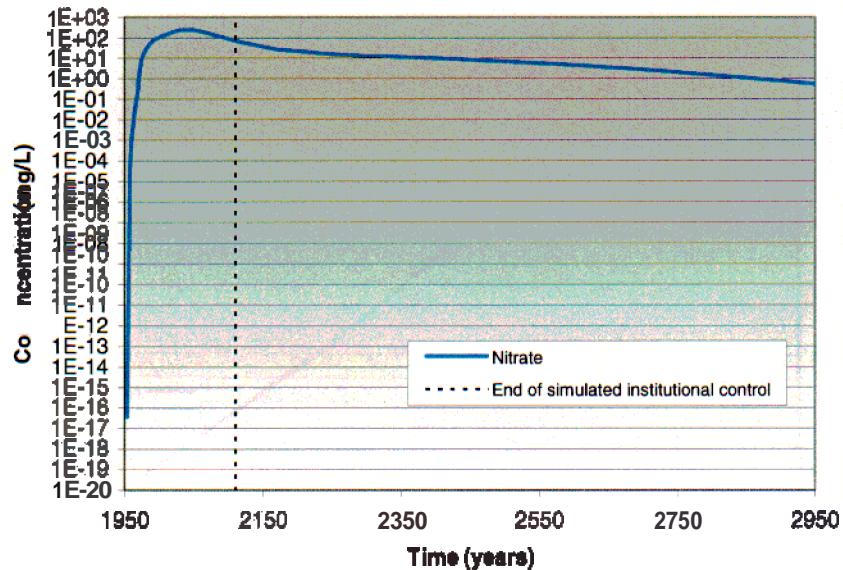


Figure 6-67. Simulated maximum groundwater concentrations for Group 6 contaminants over 1,000 years.

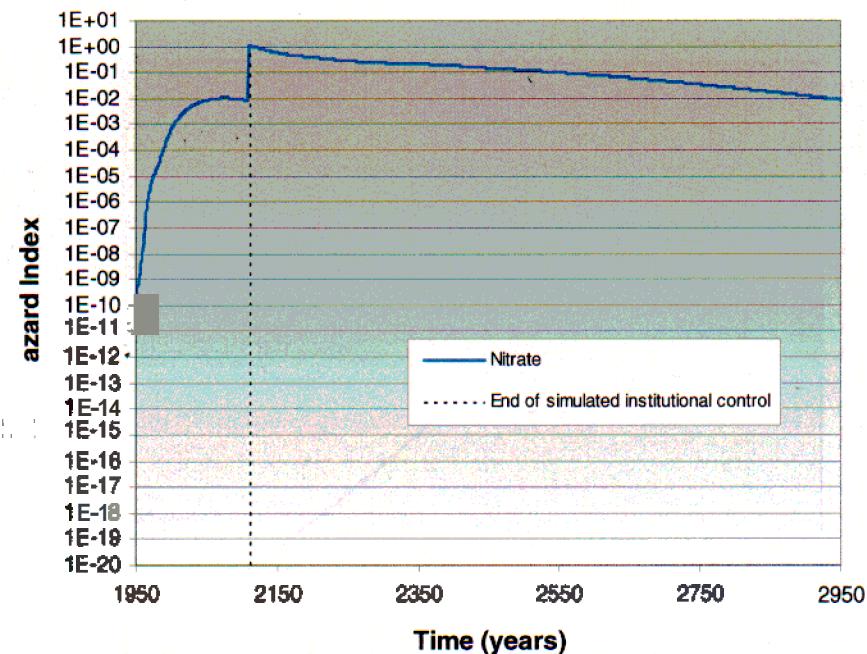


Figure 6-68. Hazard index for Group 6 contaminants for hypothetical future residential exposure pathways.

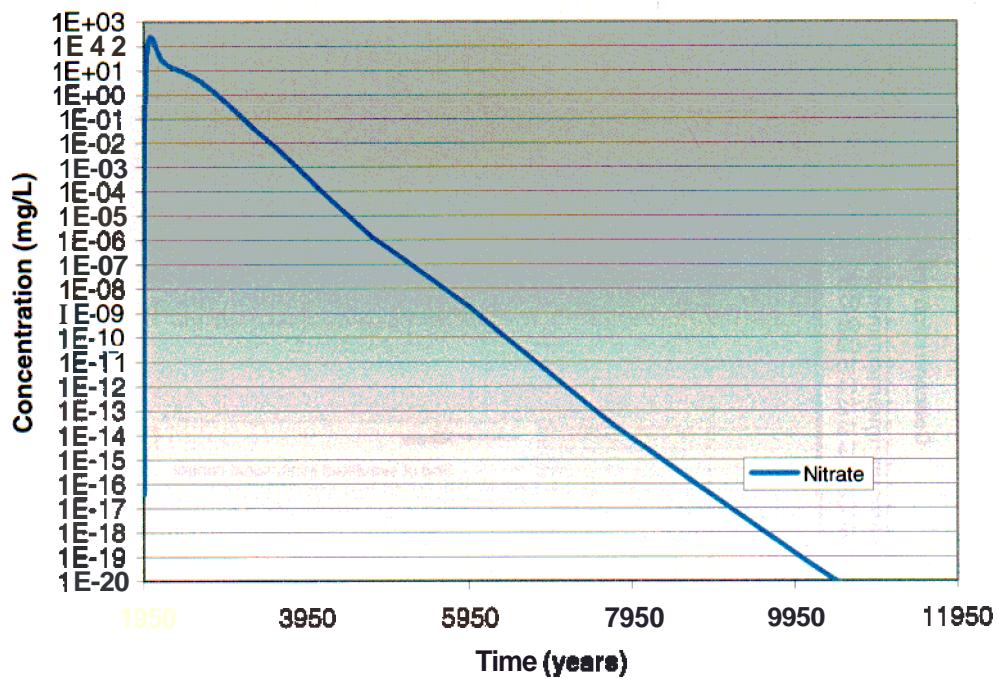


Figure 6-69. Simulated maximum groundwater concentrations for Group 6 contaminants over 10,000 years.

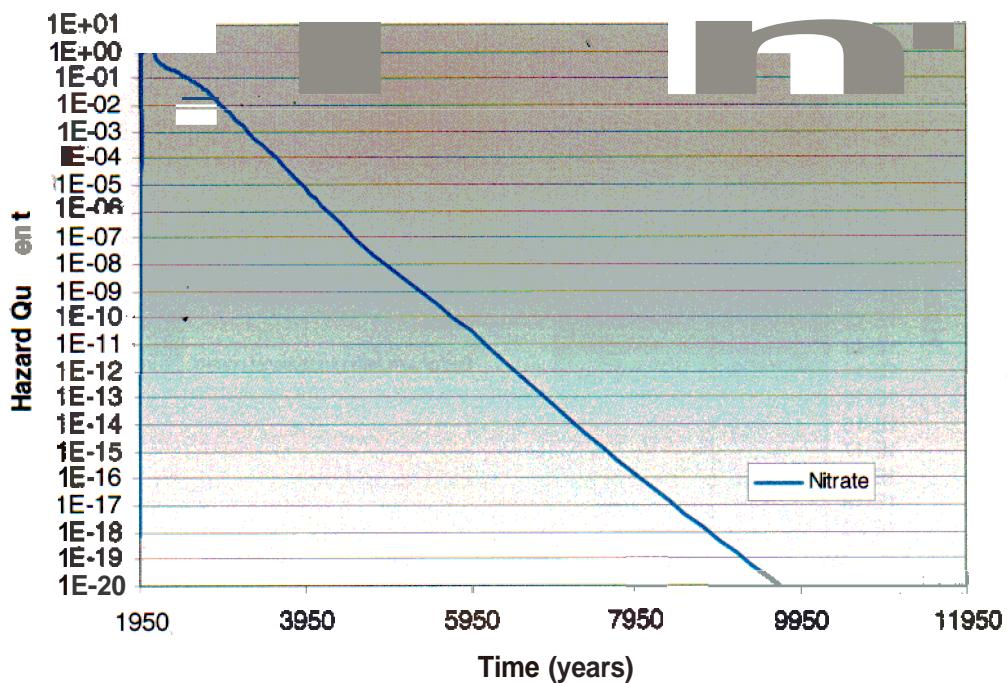


Figure 6-70. Simulated maximum groundwater hazard quotient for Group 6 contaminants over 10,000 years anywhere in the aquifer.

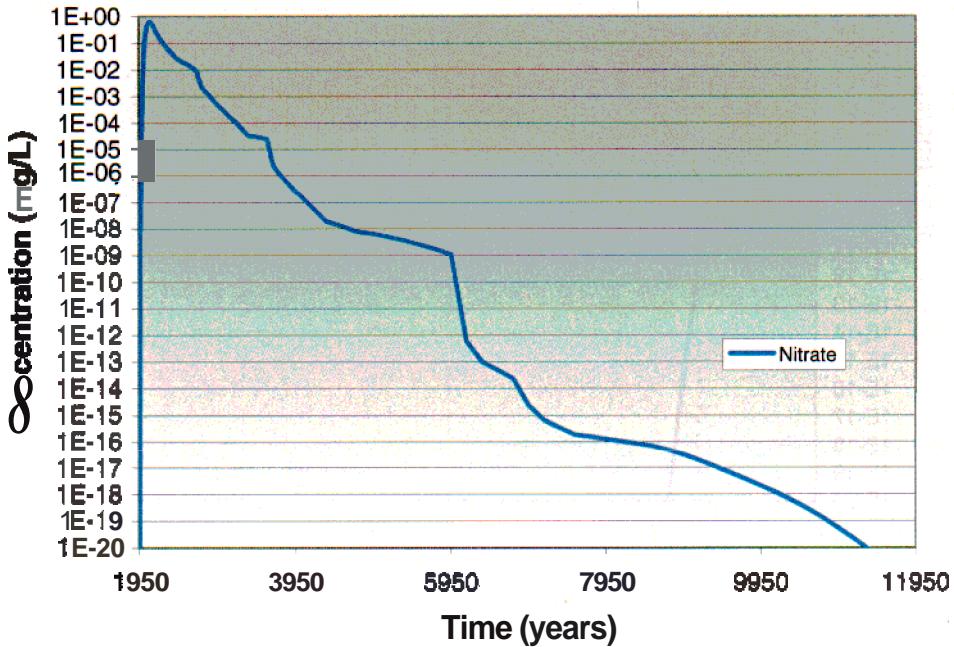


Figure 6-71. Simulated maximum groundwater concentrations for Group 6 contaminants over 10,000 years at the southern Idaho National Engineering and Environmental Laboratory boundary.

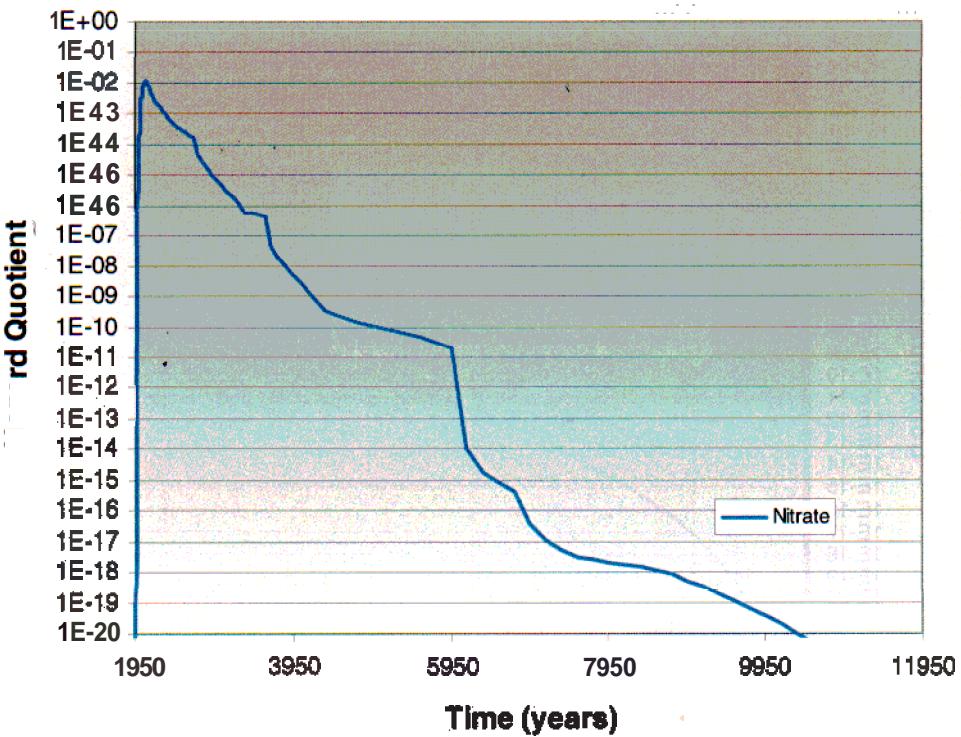


Figure 6-72. Simulated maximum groundwater ingestion hazard quotient for Group 6 contaminants over 10,000 years at the southern Idaho National Engineering and Environmental Laboratory boundary.

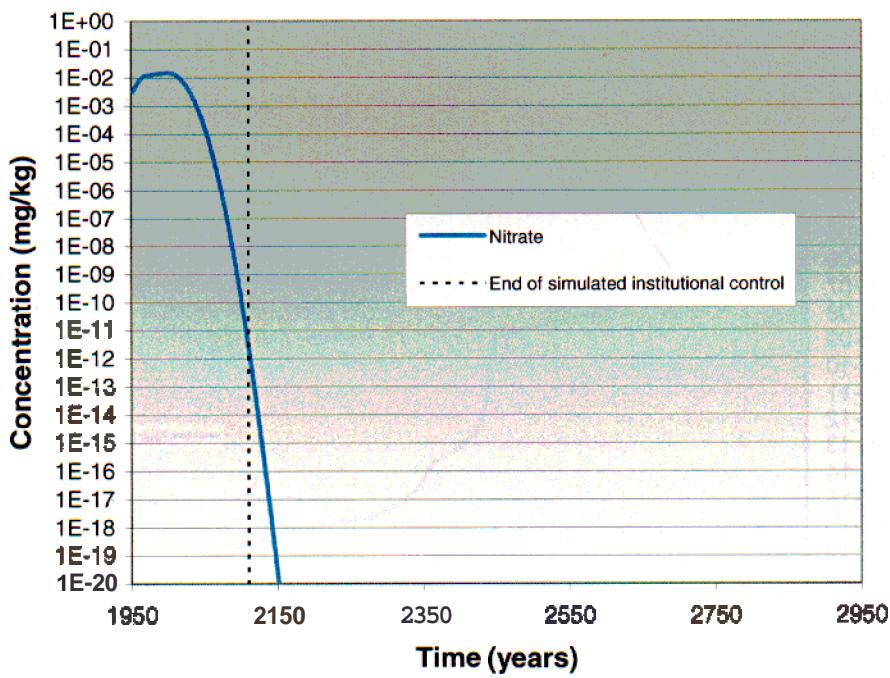


Figure 6-73. Simulated soil concentrations for Group 6 contaminants.

6.4.3.7 Group 7 Contaminants. This subsection provides the simulated risk and concentration plots for Group 7 contaminants C-14, Cl-36, I-129, Tc-99, and Nb-94.

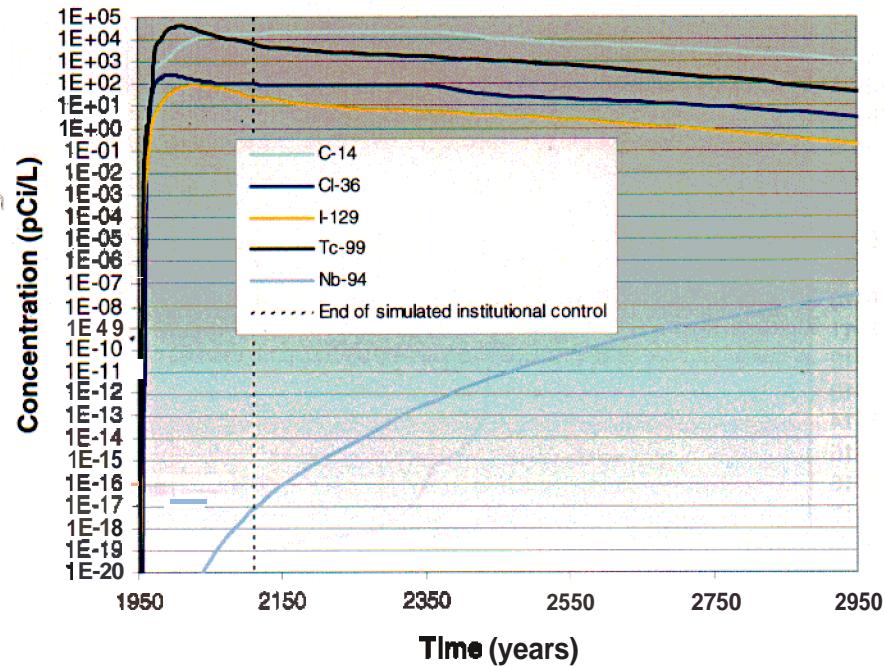


Figure 6-74. Simulated maximum groundwater concentrations for Group 7 contaminants over 1,000 years.

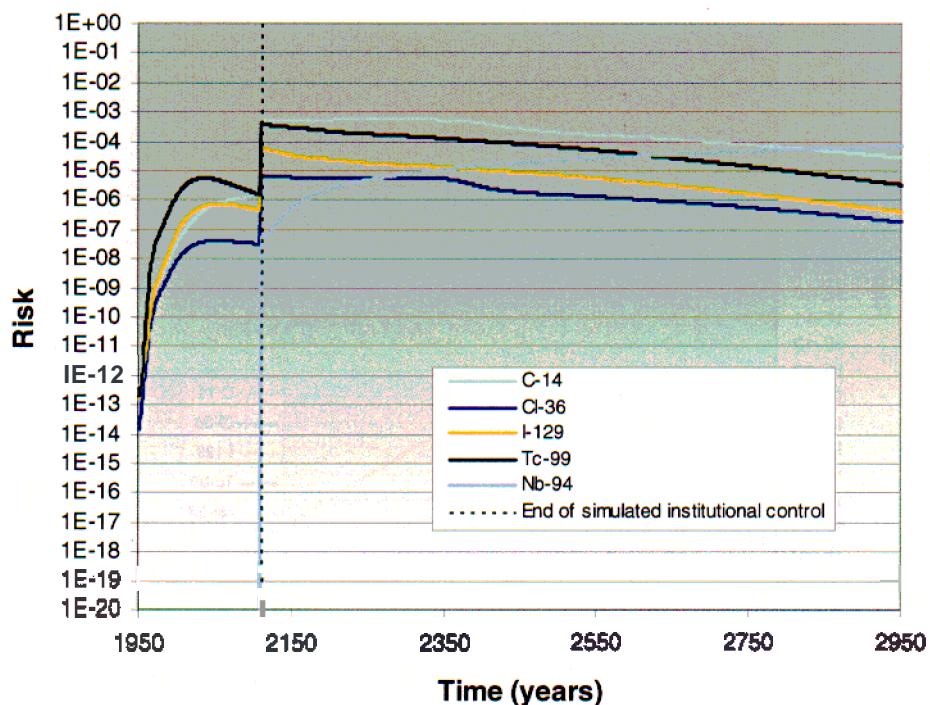


Figure 6-75. Total carcinogenic risk for Group 7 contaminants for hypothetical future residential exposure pathways.

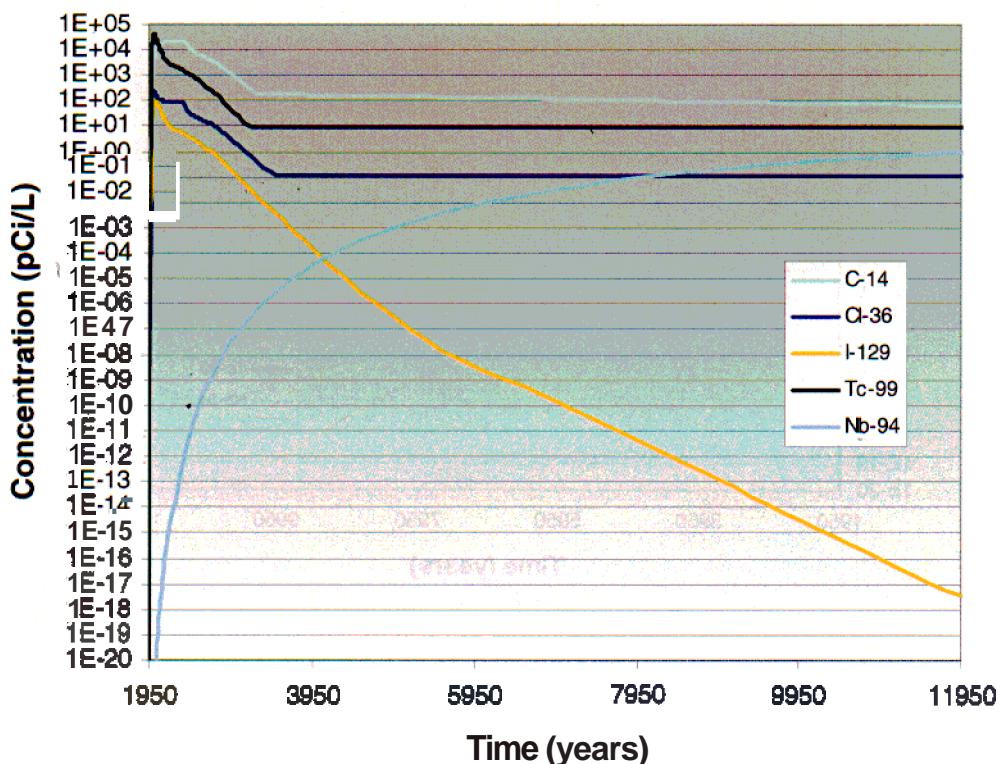


Figure 6-76. Simulated maximum groundwater concentrations for Group 7 contaminants over 10,000 years.